Material Safety Data Sheet

SECTION 1 - PRODUCT IDENTIFICATION AND USE

"44" ROSIN FLUX CORED SOLDER

Product Identifier As Used On Label

MSDS Number: "44" Core

Date Prepared: 11-Dec-98

Product Use: Soldering flux in cored solder for electrical or electronic applications.

RS.com SKU 910-0458

Manufacturer's Name and Addres

KESTER SOLDER
DIVISION OF LITTON SYSTEMS, INC.
515 E. TOUHY AVENUE
DES PLAINES, IL 60018 USA

Supplier's Name and Address (if different from manufacturer)

Telephone Number For Information: (847) 297-1600

CHEMTREC 24-Hour Emergency Telephone Number: (800) 424-9300

NFPA Rating:	Health:	1	Flammability:	2	Reactivity	0	Special:	
HMIS Rating:	Health:	1	Flammability:	2	Reactivity:	0	Personal Protection:	X

DOT: Not Regulated.

WHMIS: Class D, Division 2, Subdivision B.

TDG: Not Regulated.

NA = Not Applicable *NE = Not Established* *UN = Unknown*

SECTION 2 - HAZARDOUS INGREDIENTS

HAZARDOUS INGREDIENTS 1 % or greater CARCINOGENS 0.1 % or greater	C.A.S. Number	Weight Percent	OSHA PEL mg/m³	ACGIH TLV TWA mg/m³	LD 50 injested g / Kg	LC 50 inhaled g / m³
Lead	7439-92-1 *	**	0.05	0.15	NE	NE
Tin	7440-31-5	**	2	2	NE	NE
Silver	7440-22-4 *	**	0.01	0.1	NE	NE
Bismuth	7440-69-9	**	NE	NE	NE	NE
Antimony	7440-36-0 *	**	0.5	0.5	7.0 Rat	NE
Rosin	8050-09-7	< 3	NE	NE	NE	NE
NON-HAZARDOUS INGREDIENTS						

NOTES: * This Chemical is subject to the reporting requirements of Section 313 of Title III of the U.S.A. Superfund Amendment and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

** Composition and weight percent of solder alloys varies widely and can be determined by product label.
Flux in core is typically 1 - 3 % by weight.

SECTION 3 - PHYSICAL DATA

Physical State at 20 °C: Solid

Boiling Point (760 mm Hg): NA °F NA °C

Vapor Pressure (mm Hg at 20 °C): NA

Vapor Density (air = 1): NA

Solubility in Water (% by weight): 0

pH: NA

Freezing Point (760 mm Hg): NE °F NE °C

Specific Gravity (water = 1 at 25 °C): >1

Melting Point: NA °F NA

Evaporation Rate (butyl acetate = 1): NA

Percent Volatile (by volume): NA %

Volatile Organic Compound (VOC): NA g / Liter

Odor Threshold: NE

Coefficient of Water / Oil Distribution: NE

Appearance and Odor: Silver-gray metal in wire, ribbon or preformed shapes with a core of flux, no odor.

SECTION 4 - FIRE AND EXPLOSION HAZARDS

Flammability: ● No ○ Yes Conditions to avoid: NE

Flash Point (T.O.C): NA °F NA °C Auto-Ignition Temperature: NA °F NA °C

Flammability Limits percent by volume in air LEL: NA UEL: NA

Extinguishing Means: ○ Water ○ Carbon Dioxide ○ Alcohol Foam ○ Dry Chemical

Hazardous Combustion Products: Melted solder may liberate carbon monoxide, carbon dioxide, lead oxide fumes.

Explosion Sensitivity: Impact - None Identified Static Discharge Sensitivity - ○ Yes ● No

Special Firefighting Procedures: Wear self-contained breathing apparatus if this material is in the vicinity of a fire.

Unusual Fire and Explosion Hazards: Flux in cored solder may ignite when the solder melts in a fire.

SECTION 5 - REACTIVITY DATA

Chemical Stability: ● Stable ○ Unstable Conditions to avoid: None.

Incompatibility (materials to avoid): Strong acid, strong oxidizers

Hazardous Decomposition Products:

When heated to soldering temperatures, the solvent in the flux will boil away and carry up droplets of rosin and thermal degradation products such as aliphatic aldehydes, acids and terpenes. No lead is detected in fumes from soldering below 1000 °F (537 °C).

HAZARDOUS POLYMERIZATION:

○ May Occur Conditions to avoid: NE

● Will Not Occur

SECTION 6 - HEALTH HAZARD DATA / TOXICOLOGICAL PROPERTIES

EXPOSURE LIMITS: Not determined for the product. See Section 2 for ingredients.

Primary exposure during soldering is to evaporated solvent which may contain droplets of rosin and / or other organic decomposition products.

PRIMARY ROUTES OF ENTRY: ○ Skin ● Eyes ● Inhalation ● Ingestion

TARGET ORGANS: Flux fumes: eyes, skin, mucous membranes and respiratory system. Ingestion of lead metal can affect kidneys, gastrointestinal, reproductive and neurological systems.

EFFECTS OF ACUTE (severe short-term) EXPOSURE:

INHALATION: Flux fumes during soldering may cause irritation and damage of mucous membranes and respiratory system

SKIN CONTACT: Possible local irritation by contact with flux or fumes.

SKIN ABSORPTION: None.

EYE CONTACT: Irritation from contact with smoke from soldering.

INGESTION: Not likely to occur.

EFFECTS OF CHRONIC (prolonged) EXPOSURE:

Breathing fumes during soldering may cause respiratory system irritation, headache and irritation of mucous membranes. Smoke during soldering will contain rosin which is an allergen and can cause respiratory system irritation and damage. Repeated ingestion of lead can result in systemic poisoning.

Medical Conditions Generally Aggravated by Exposure:

Flux: Pre-existing conditions of the lungs. Lead: Diseases of the blood and blood-forming organs, kidneys, nerves and possibly reproductive system.

CARCINOGENICITY/ ○ NTP ○ OSHA ● IARC ○ Not Listed

TERATOGENICITY / MUTAGENICITY: See Section 9 for additional information.

SECTION 7 - FIRST AID MEASURES

Seek medical assistance for further treatment, observation and support if needed.

EYE CONTACT: For burns flush immediately with cool water. For fume irritation use eye drops and remove from exposure.

SKIN CONTACT: For burns flush immediately with cool water. If a rash develops from flux fumes, remove person from exposure and wash skin with soap and water.

INHALATION: Remove person from exposure to fumes.

INGESTION: NA

SECTION 8 -PREVENTIVE MEASURES

PROCEDURES FOR MATERIAL CONTROL:

Steps to be Taken if Material is Spilled or Released:

Melted solder will solidify on cooling and can be scraped up. Use caution to avoid breathing fumes if a gas torch is used to cut up large pieces.

Precautions to be taken in Handling and Storage:

Store away from sources of sulfur. Wash hands after handling solder containing lead before eating or smoking. Avoid breathing smoke / fumes generated during soldering. Do not place flux cored solder into a hot solder pot because the flux may ignite.

Waste Disposal Methods:

Solder can be reclaimed.

CAUTION: Empty containers may contain product residue. Observe all label precautions.

PERSONAL PROTECTIVE EQUIPMENT:

VENTILATION TO BE USED: Provide adequate exhaust ventilation (general and / or local) if necessary to meet exposure requirements. Local exhaust ventilation is preferred to minimize dispersion of smoke and fumes into the work area.

Respiratory Protection: When ventilation is not sufficient to remove fumes from the breathing zone, a NIOSH approved respirator should be worn.

Protective Gloves: Usually not required.

Eye Protection: When soldering, use goggles or face shield.

Other Protective Clothing and Equipment: None.

Hygienic Work Practices: Wash hands thoroughly after handling solder containing lead and before eating or smoking.

SECTION 9 - ADDITIONAL INFORMATION

If the solder contains lead, these precautions are applicable.
This product contains lead which is known to the State of California to cause cancer and birth defects or other reproductive harm.
Lead and its components have been placed in Class B2, probably carcinogenic to humans by USEPA.
IARC has placed lead and its compounds in Class 2B, possibly carcinogenic to humans.

SECTION 10 - PREPARATION INFORMATION

Prepared By: D. Bernier

Date Prepared: 11-Dec-98

Telephone Number: (847) 297-1600

Supersedes: 15-Oct-96

The information contained herein is based on data considered accurate and is offered solely for information, consideration and investigation. Kester Solder extends no warranties, makes no representations and assumes no responsibility as to the accuracy, completeness or suitability of this data for any purchaser's use. The Data on this Material Safety Data Sheet relates only to this product and does not relate to use with any other material or in any process. All chemical products should be used only by or under the direction of technically qualified personnel who are aware of the hazards involved and the necessity for reasonable care in handling. Hazard communication regulations, U.S.A. Occupational Safety and Health Act (OSHA) and Canada Workplace Hazardous Materials Information Systems (WHMIS), require that employees must be trained how to use a Material Safety Data Sheet as a source for Hazard information.

Material Safety Data Sheet

SECTION 1 - PRODUCT IDENTIFICATION AND USE

SOLDER ALLOYS CONTAINING LEAD

Product Identifier As Used On Label

MSDS Number: Lead Solder

Date Prepared: 02-Aug-00

Product Use: Used with flux to bond most common metals.

RS.com SKU 910-0458

Manufacturer's Name and Addres

KESTER SOLDER
DIVISION OF LITTON SYSTEMS, INC.
515 E. TOUHY AVENUE
DES PLAINES, IL 60018 USA

Supplier's Name and Address (if different from manufacturer)

Telephone Number For Information: (847) 297-1600

CHEMTREC 24-Hour Emergency Telephone Number: (800) 424-9300

NFPA Rating:	Health: 1	Flammability: 0	Reactivity 0	Special:
HMIS Rating:	Health: 1	Flammability: 0	Reactivity: 0	Personal Protection: X

DOT: Not Regulated.

WHMIS: Class D, Division 2, Subdivision A.

TDG: Not Regulated.

NA = Not Applicable NE = Not Established UN = Unknown

SECTION 2 - HAZARDOUS INGREDIENTS

HAZARDOUS INGREDIENTS 1 % or greater CARCINOGENS 0.1 % or greater	C.A.S. Number	Weight Percent	OSHA PEL mg/m³	ACGIH TLV TWA mg/m³	LD 50 injested g / Kg	LC 50 inhaled g / m³
Lead	7439-92-1 *	**	0.05	0.15	NE	NE
Tin	7440-31-5	**	2	2	NE	NE
Silver	7440-22-4 *	**	0.01	0.1	NE	NE
Bismuth	7440-69-9	**	NE	NE	NE	NE
Antimony	7440-36-0 *	**	0.5	0.5	7.0 Rat	NE
Copper	7440-50-8	**	NE	0.2	NE	NE
Indium	7440-74-6	**	NE	0.1	NE	NE
NON-HAZARDOUS INGREDIENTS						

NOTES: * This Chemical is subject to the reporting requirements of Section 313 of Title III of the U.S.A. Superfund Amendment and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

** Composition and weight % of solder alloys varies widely and can be determined by product label.

SECTION 3 - PHYSICAL DATA

Physical State at 20 °C: Solid

Specific Gravity (water = 1 at 25 °C): > 1

Boiling Point (760 mm Hg): NA °F NA °C

Melting Point: NA °F NA

Vapor Pressure (mm Hg at 20 °C): NA

Evaporation Rate (butyl acetate = 1): NA

Vapor Density (air = 1): NA

Percent Volatile (by volume): NA %

Solubility in Water (% by weight): 0

Volatile Organic Compound (VOC): NA g / Liter

pH: NA

Odor Threshold: NE

Freezing Point (760 mm Hg): NE °F NE °C

Coefficient of Water / Oil Distribution: NE

Appearance and Odor: Silver-gray metal in bar, wire, ribbon or preformed shaped, no odor.

SECTION 4 - FIRE AND EXPLOSION HAZARDS

Flammability: ● No ○ Yes Conditions to avoid: NE

Flash Point (T.O.C): NA °F NA °C Auto-Ignition Temperature: NA °F NA °C

Flammability Limits percent by volume in air LEL: NA UEL: NA

Extinguishing Means: ○ Water ○ Carbon Dioxide ○ Alcohol Foam ○ Dry Chemical

Hazardous Combustion Products: Melted solder above 1000 °F will liberate highly toxic lead fumes.

Explosion Sensitivity: Impact - None Identified Static Discharge Sensitivity - ○ Yes ● No

Special Firefighting Procedures: Wear self-contained breathing apparatus if this material is in the vicinity of a fire.

Unusual Fire and Explosion Hazards: Flux in cored solder may ignite when the solder melts in a fire.

SECTION 5 - REACTIVITY DATA

Chemical Stability: ● Stable ○ Unstable Conditions to avoid: None

Incompatibility (materials to avoid): Strong acids, strong oxidizers.

Hazardous Decomposition Products:
No lead or antimony are detected in fumes from soldering below 1000 °F (537 °C).

HAZARDOUS POLYMERIZATION:

○ May Occur Conditions to avoid: NE
● Will Not Occur

SECTION 6 - HEALTH HAZARD DATA / TOXICOLOGICAL PROPERTIES

EXPOSURE LIMITS: Not determined for the product. See Section 2 for ingredients.

Primary exposure during soldering is to flux fumes.See appropriate Material Safety Data Sheet.

PRIMARY ROUTES OF ENTRY: ○ Skin ● Eyes ● Inhalation ● Ingestion

TARGET ORGANS: Ingestion of lead metal can affect kidneys, gastrointestinal, reproductive and neurological systems.

EFFECTS OF ACUTE (severe short-term) EXPOSURE:

INHALATION: Over exposure to lead may result in central nervous system disorders characterized by drowsiness, seizures, coma and death. Exposure of this magnitude is unlikely.

SKIN CONTACT: None.

SKIN ABSORPTION: None.

EYE CONTACT: None.

INGESTION: Not likely to occur, but would have similar effects as inhalation.

EFFECTS OF CHRONIC (prolonged) EXPOSURE:

Repeated inhalation or ingestion of lead can result in systemic poisoning.

Medical Conditions Generally Aggravated by Exposure:

Lead: Diseases of the blood and blood-forming organs, kidneys, nerves and possibly reproductive systems.

CARCINOGENICITY/ ○ NTP ○ OSHA ● IARC ○ Not Listed

TERATOGENICITY / MUTAGENICITY: See Section 9 for additional information.

SECTION 7 - FIRST AID MEASURES

Seek medical assistance for further treatment, observation and support if needed.

EYE CONTACT: For burns flush immediately with cool water.

SKIN CONTACT: For burns flush immediately with cool water.

INHALATION: Remove person from exposure to fumes.

INGESTION: If thought to be overexposed, the person should have a blood lead analysis done.

SECTION 8 -PREVENTIVE MEASURES

PROCEDURES FOR MATERIAL CONTROL:

Steps to be Taken if Material is Spilled or Released:

Melted solder will solidify on cooling and can be scraped up. Use caution to avoid breathing fumes if a gas torch is used to cut up large pieces.

Precautions to be taken in Handling and Storage:

Store away from sources of sulfur.Wash hands after handling solder containing lead before eating or smoking. Avoid breathing smoke/fumes generated during soldering. Do not place flux cored solder into a hot solder pot because the flux may ignite. Use of strong acid fluxes may result in liberation of toxic lead chloride fumes.

Waste Disposal Methods:

According to local regulations for latex and solid rubber.

CAUTION: Empty containers may contain product residue. Observe all label precautions.

PERSONAL PROTECTIVE EQUIPMENT:

VENTILATION TO BE USED: Provide adequate exhaust ventilation (general and / or local) if necessary to meet exposure requirements. Local exhaust ventilation is preferred to minimize dispersion of smoke and fumes into the work area.

Respiratory Protection: When ventilation is not sufficient to remove fumes from the breathing zone, a NIOSH approved respirator should be worn.

Protective Gloves: Usually not required.

Eye Protection: When soldering, use goggles or face shield.

Other Protective Clothing and Equipment: None.

Hygienic Work Practices: Wash hands thoroughly after handling solder containing lead before eating or smoking.

SECTION 9 - ADDITIONAL INFORMATION

If the solder contains lead, these precautions are applicable.
This product contains lead which is known to the State of California to cause cancer and birth defects or other reproductive harm.
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SECTION 10 - PREPARATION INFORMATION

Prepared By: M.Wise

Date Prepared: 02-Aug-00

Telephone Number: (847) 297-1600

Supersedes:

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